CHARTER AND BY-LAWS

OF

THE ALLEGHANY RAILROAD

AND

COAL COMPANY.

WITH

REPORTS, CERTIFICATES, AND REMARKS.

PHILADELPHIA:
T. K. AND P. G. COLLINS, PRINTERS.
1854.

OFFICERS.

President,

HERMAN HAUPT.

Secretary and Treasurer,

CHRISTIAN E. SPANGLER.

Directors,

HERMAN HAUPT, HORATIO N. BURROUGHS,
CHRISTIAN E. SPANGLER, JAMES MAGEE,
GEORGE HOWELL.

CHARTER

OF THE

ALLEGHANY RAILROAD AND COAL COMPANY.

An Act to incorporate the Alleghany Railroad and Coal Company.

SECTION 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same,* That John Bell, Robert M. S. Jackson, B. F. Bell, Charles Fuller, John Scott, John H. Brant and others who may become associated with them, be and they are hereby constituted a body politic and corporate by the name, style, and title of "THE ALLEGHANY RAILROAD AND COAL COMPANY," and as such shall have power to lay out and construct a Railroad from the Alleghany Mountain in Blair County to the Pennsylvania Canal at Hollidaysburg, or to connect with the Pennsylvania Railroad, or with the Portage Railroad at any convenient point or points, with the right to extend the same into the County of Clearfield; they shall also have the right to purchase lands and real estate to an amount not exceeding one hundred and fifty thousand dollars including the cost of land and buildings required for shipping coal on the Pennsylvania Canal, and to hold the same in fee simple, and shall have the right to prove and open the veins of coal and other minerals on or in their lands, to mine, lease, or sell coal, to sell or manufacture the timber which may be found on said lands; to erect such buildings, machinery and improvements as may be necessary, and may divide

said land into a convenient number of shares of capital stock at not less than ten nor exceeding fifty dollars for each share at any valuation not exceeding the intrinsic productive value thereof, and to exercise all the rights, powers, and privileges conferred upon Coal Run Improvement Company by the act incorporating the same, approved the eleventh day of March, Anno Domini one thousand eight hundred and fifty one, with the acts therein referred to as forming part of the same.

SECTION 2. That the Stockholders shall be jointly and severally liable in their individual capacities for debts due to miners, quarrymen, and other laborers employed by such companies, and for machinery and other materials furnished for said companies respectively.

SECTION 3. That the said Company shall pay into the State Treasury the sum of one-half of one per centum on the capital stock of the said Company, to be paid in three annual instalments, the first to be paid on the first day of January, one thousand eight hundred and fifty five.

E. B. CHASE,
Speaker of the House of Representatives.

M. McCASLIN,
Speaker of the Senate.

Approved—The twenty-first day of April, A. D. one thousand eight hundred and fifty-four.

WM. BIGLER.

SECRETARY'S OFFICE.

PENNSYLVANIA, *ss.*

I do hereby certify that the foregoing and annexed is a true and correct copy of the original act of the General Assembly as the same remains on file in this office.

In testimony whereof I have hereunto set my hand and caused the seal of the Secretary's office to be affixed at Harrisburg this twenty-second day of April, A. D. one thousand eight hundred and fifty-four.

[SEAL] E. S. GOODRICH,
Dep. Secretary of the Commonwealth.

SUPPLEMENT.

An Act relative to the Alleghany Railroad and Coal Company.

SECTION 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same*, That any Railroad made or constructed by the Alleghany Railroad and Coal Company shall be taken and deemed a public highway, and that for the purpose of making and constructing any Railroad by said Company, and the regulation of the toll tonnage and transportation thereon, said Company shall have all the rights, powers, and privileges, and be subject to all the conditions and restrictions conferred and imposed by the act of Assembly approved the nineteenth day of February, one thousand eight hundred and forty-nine, entitled "An Act regulating Railroad Companies."

SECTION 2. That all the rights, powers, and privileges conferred by the act of Assembly creating said Company, for any other purposes than such as strictly pertain to said Company as a Railroad Company, shall continue in force for twenty years from and after the passage of this act and no longer.

E. B. CHASE,
Speaker of the House of Representatives.

M. McCASLIN,
Speaker of the Senate.

Approved—The twenty-first day of April, A. D. one thousand eight hundred and fifty-four.

WM. BIGLER.

SECRETARY'S OFFICE.

PENNSYLVANIA, *ss.*

I do hereby certify that the foregoing and annexed is a true and correct copy of the original act of the General Assembly as the same remains on file in this office.

In testimony whereof I have hereunto set my hand and caused the seal of the Secretary's office to be affixed at Harrisburg this twenty-second day of April, A. D. one thousand eight hundred and fifty-four.

[SEAL] E. S. GOODRICH,

Dep. Secretary of the Commonwealth.

The act incorporating the Alleghany Railroad and Coal Company confers the rights, powers, and privileges of the Coal Run Improvement Company, the charter of which is as follows :—

To Incorporate the Coal Run Improvement Company.

SECT. 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same,* That William Taylor, William S. Warner, William McKnight, Michael E. Tobin and James Adams, Jr., and the other equitable owners of certain land in Coal Township, Northumberland County, their associates, successors and assigns, be and they are hereby constituted a body politic and corporate by the name, style, and title of "The Coal Run Improvement Company," and as such shall have power to take and hold land and real estate in fee simple in the County of Northumberland, and to prove and open the veins of coal and other minerals on or in their land, construct and erect shutes, breakers, screen, and fit and prepare the said veins of coal and other minerals to be worked and leased, and to make and construct

railroads over and upon their land; and the said Company may from time to time make leases of the said veins of coal and other minerals, which may be found in the land belonging to the said Company; and the said Company by the said name, is hereby declared and made capable in law to sue and be sued, implead and be impleaded; to have a common seal, to sell and dispose of the products of their land, and to hold and convey such real and personal property as may be necessary to promote the objects of their incorporation, and to do all things necessary to promote the objects and designs of the same, according to the true intent and meaning thereof; and the said Company shall have all the rights, powers, and privileges, and be subject to all the restrictions, provisos and liabilities, conferred and imposed upon the Swatara Company by the second, third and fourth sections of the Act incorporating the same, approved the sixth day of March, one thousand eight hundred and forty-nine—*Provided*, That the said Company shall elect five directors for the management of the affairs thereof, and fifteen days notice of the said election shall be given in one newspaper published in the County of Northumberland, and one published in the City of Philadelphia.

SECT. 2. That this Act shall continue in force twenty years from the time of its passage, and that the Legislature reserves the right to alter, amend or annul this Charter at any time hereafter, provided no injustice be done the Corporators.

JOHN CESSNA,
Speaker of the House of Representatives.

BENJAMIN MATTHIAS,
Speaker of the Senate.

Approved—The eleventh day of March, A. D. one thousand eight hundred and fifty-one.

WILLIAM F. JOHNSTON.

The Charter of the Coal Run Improvement Company confers upon it the rights, powers, and privileges, and makes it subject to the restrictions, provisos, and liabilities of the Swatara Company, the Charter of which is as follows:—

An Act to Incorporate the Swatara Company.

SECT. 1.—Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same, that Jacob Mayland, Thomas Adams, Isaac Starr, James W. Paul, William Smith, William S. Vaux, Ann Graff, Charles Dutilh, Charles Graff, William Eckert, Elizabeth Mifflin, Charles Mifflin, and their successors, be and they are hereby incorporated and made a body politic and corporate, in fact and in name, by the name of "The Swatara Company," and by that name shall have perpetual succession, and be capable in law of holding and conveying such real and personal property as may be necessary for the objects of this incorporation, may sue and be sued, plead and be impleaded, in all courts of law and equity, may have a common seal, which they shall have power to alter and renew at pleasure, and may receive, execute, and deliver all such instruments of writing, and do such acts and things necessary to promote the objects and designs of said Company, as authorized by this Act, viz: from time to time to make leases of the coal veins which may be found in the tracts of land belonging to said Company, and to effect sales of the same, or of portions thereof.

SECT. 2.—That the land to be conveyed to the said Company in fee simple, by the parties owning the same, shall form a common stock, and be divided into a convenient number of shares, and apportioned by the said Company among the subscribers, according to their respective interests, for which certificates of stock shall be issued, and be transferable and assignable in such way, and subject to such con-

ditions, as the said Company may, from time to time, prescribe; and the said shares of stock so created shall be, for all legal purposes whatever, deemed and treated as personal estate: *Provided*, That the quantity of land which shall be held by said Company at any one time, shall not exceed three thousand acres.

SECT. 3.—That the stockholders shall meet as soon as practicable after the passage of this Act (notice of the time and place of such meeting having first been given by advertisement in one newspaper published in the county of Schuylkill, and in one daily paper published in the city of Philadelphia), and annually thereafter, at such time and place as shall be fixed upon, and shall then and there proceed to elect by ballot twelve directors, to serve for the term of one year, and until others are chosen in their places, and said election shall be made by such of the stockholders of said Company as shall attend for that purpose either in person or by proxy, each share of stock to entitle the holder thereof to one vote; the directors so chosen shall elect one of their number to be President of the Board of Directors of said Company, and in case of vacancy or absence, the office shall be filled by such person or persons as the remainder of the directors, or a majority of them, may appoint.

SECT. 4.—That the Directors shall have full power to make by-laws, and to appoint such officers and agents as they shall deem expedient, for the well conducting and transacting the business of the Company, to declare and provide for the payment of dividends to the stockholders, and in general to superintend the business and concerns of the Company; provided, such by-laws shall not be repugnant to the Constitution and laws of this State, or of the United States; and provided that this Act shall not be construed to confer upon the said Company mining or banking privileges; and provided, that the said Company shall have the same rights and privileges over the property, real and personal, which may be conveyed to them (subject to the modifications in this Act contained), as the present owners of the same now

have and enjoy; but no other rights or privileges over the same, except such as are expressly authorized by this Act.

SECT. 5. This Act shall only continue in force twenty years from the time of its passage, unless renewed or extended by a subsequent legislature.

WILLIAM F. PACKER,
Speaker of the House of Representatives.

GEORGE DARSIE,
Speaker of the Senate.

Approved—The sixth day of March, Anno Domini one thousand eight hundred and forty-nine.

WILLIAM F. JOHNSTON,
Governor.

BY-LAWS

OF THE

ALLEGHANY RAILROAD AND COAL COMPANY.

ART. 1. The affairs of the Company shall be managed by a Board of five Directors, who shall be elected on the first Monday of February, in each and every year, in the City of Philadelphia, in the State of Pennsylvania, upon due notice being first given of the time and place of meeting.

ART. 2. The land held by the Company shall be divided into forty thousand shares, valued at twenty-five dollars per share.

ART. 3. The officers of the Company shall consist of a President, Treasurer and Secretary.

ART. 4. It shall be the duty of the President to preside at all meetings of the Board, and to perform such other duties as may be imposed upon him by the By-laws and resolutions of the Board of Directors, enforce the same, and call special meetings whenever he may deem it necessary, or whenever requested to do so by any two members of the Board.

ART. 5. It shall be the duty of the Treasurer to receive and pay out, under the direction of the Board and agreeably to its By-laws, all moneys which he may receive from time to time for the use of the Company.

ART. 6. It shall be the duty of the Secretary to record the minutes and proceedings of the Board, and to transcribe them in a suitable book to be provided for that purpose; and to superintend, in conjunction with the President, the transfer

of its stock, and the issuing of certificates therefor, and to keep the stock-ledger.

ART. 7. The Board shall hold stated quarterly meetings on the first Tuesday of February, May, August, and November, and a majority of its members shall constitute a quorum for the transaction of business.

ART. 8. The Board do hereby adopt as its seal, one having engraved on the outer circle of its face these words: "Alleghany Railroad and Coal Company;" and on the inner circle a representation of a coal drift and cars.

ART. 9. The stock of the Company shall be assignable and transferable at its office, either in person or by a regularly constituted attorney, in the presence of either the President, Secretary, or one of the Directors; no transfer shall be allowed, unless the old certificate be surrendered.

ART. 10. The certificates of stock shall be printed from time to time, as they may be required, by order of the Board, and kept in the possession of the President, who shall deliver them to the Secretary, as they may be wanted, taking his receipt therefor. And all certificates of stock, issued to the stockholders, shall be impressed with the seal of the Company, signed by the President, and countersigned by the Secretary; who shall, on their delivery, take receipts for the same.

ART. 11. All orders drawn on the Treasurer for moneys, shall be signed by the President, or in his absence by a majority of the Directors present, and countersigned by the Secretary.

ART. 12. A Standing Committee of two members shall be chosen by the Board, to be called the Committee of Accounts, whose duty it shall be to make quarterly examination of the Treasurer's accounts of moneys received and paid on behalf of the Company.

ART. 13. The Board of Directors shall not have power to borrow money upon, or pledge the real estate of the Company, in any form whatever, or in any way prejudice the interests of the stockholders, by creating liens against the

property of the Company, unless authorized so to do by the consent of three-fourths of the stockholders. No officer shall be allowed to use the credit of the Company, but all work done and materials furnished shall be by contract, and in the individual names of the contracting parties, the Company in its corporate capacity not being a party thereto.

ART. 14. The By-laws may be added to, altered, or amended at any time, by a majority of the Board, notice of such alteration having been given at a previous meeting. But no alteration of Article 13 shall be valid, until confirmed by the consent of three-fourths of the stockholders.

ART. 15. If any person claims a certificate of stock to be issued in lieu of one lost or destroyed, he shall make an affidavit of the fact, and state the circumstances of the loss or destruction; and he shall advertise in one or more of the public newspapers in the city of Philadelphia, for the space of four weeks, an account of such loss or destruction, describing the certificate, and its number, calling on all persons to show cause why a new certificate shall not be issued in lieu of that lost; and he shall transmit to the Secretary his affidavit, and the advertisement before mentioned, and give to the Secretary a bond of indemnity, with one or more sureties, if required (in the sum of one hundred dollars for each share to be renewed), against any damage which may arise from issuing the new certificate; whereupon the Secretary shall, one month after the notice by advertisement as aforesaid, issue a new certificate, of the same number and tenor with that lost or destroyed, and specifying that it is in lieu thereof.

ART. 16. Semiannual dividends of the profits, earnings, or receipts of the Company shall be made to the stockholders, on the last three days of January and July, and arrangements shall be made by the Board of Directors to pay the dividends due to foreign resident stockholders, at an agency of the Company, in the city of London.

REMARKS ON THE CHARTER.

It will be perceived that the privileges granted to the Alleghany Railroad and Coal Company, are of an unusual and highly favorable character.

The right to construct a railroad is not confined to any particular portion of Blair County, but the improvement may be located wherever convenient.

The right to connect with the Pennsylvania Railroad, or with the Portage Railroad, at any convenient point or points, was designed to give the privilege of building as many branches as the accommodation of the extensive coal field owned or controlled by the Company may require.

The right to extend a road into Clearfield County, may enable the Company to secure the lumber business of this region, and add largely to the profits of transportation.

The terms in which the right to purchase lands is expressed, enable the Company to hold any amount that may be considered necessary or desirable. The purchases can be made in such manner without a violation of the terms or conditions of the act, as will make the number of acres unlimited.

It is to be observed, that the location of the lands is not prescribed in the act, and the Company could hold lands in any part of Pennsylvania. They can also erect saw-mills for the manufacture of lumber, and sell the products, but it is not expected that this privilege will soon be exercised.

The lands owned by the Company can be represented by any convenient number of shares of stock at any valuation, from ten to fifty dollars per share; the capital of the Company is consequently unlimited, but it is not proposed to exceed one million of dollars, which is sufficient for the satisfactory operation of the mines.

The rights, powers, and privileges, of the Coal Run Improvement Company, are conferred upon the Alleghany Railroad and Coal Company, but without the restrictions

and limitations which that charter contains. The Coal Run Company is limited to three thousand acres, and has no mining privileges; the Alleghany Railroad and Coal Company can mine, lease, or sell coal, and can hold any number of acres in fee simple.

The limited individual liability in the second section is no real disadvantage; it will always be to the interest of the Company to have work done by contract, in which case, the laborers will not be employed by the Company, and the individual liability will not apply; but even if it should, as it is limited expressly to labor and materials, it is clear that no considerable debt of this kind could be contracted. For borrowed money or for debts other than those enumerated, the stockholders are not liable.

The tax on capital is the half of one per cent., or $5,000 on one million, payable in three annual instalments of 1,666 dollars each.

The supplement was accepted by the Company as the sole condition upon which the executive of the State would sign a bill which conferred such unusual privileges; this supplement provides that the railroad shall be used as a public highway, to which there can be no objection; also, that the privileges conferred in the Act shall expire at the end of twenty years, unless renewed. This is the usual limit of all corporate privileges, but when they are not exercised to the injury of the public, no difficulty is experienced in obtaining an extension.

A synopsis of the General Railroad law, under which the railroads of the Company will be constructed, is as follows:—

SYNOPSIS OF THE GENERAL RAILROAD LAW.

The Sections from 1 to 9 relate to the organization of exclusive Railroad Companies, but which have no application to the Railroads of this Company.

SECT. 10. Provides for taking land.

SECT. 11. For adjustment and payment of damages.

SECT. 12. For the keeping the causeways in repair, &c.

SECT. 13. Authorizes location of site of road to be changed, if deemed necessary.

SECT. 14. Provides for the service of process on the Company.

SECT. 15. Imposes penalties for injury to the works of the Company.

SECT. 16. Makes it a misdemeanor and liable to indictment to wilfully and maliciously obstruct the road, or injure any of the property of the Company.

SECT. 17. For an annual report to the stockholders by the officers, of the situation of the affairs of the Company.

SECT. 18. Makes the road a public highway, giving the Company the exclusive control of the motive power, and fixing the rates of toll and motive power, when the cars are furnished by others, at not exceeding $2\frac{1}{2}$ cents per mile, for each passenger, and 3 cents per ton per mile, for merchandise. Three cents per mile, for each passenger or baggage car, two cents for each freight car (every four wheels being computed a car).

SECT. 19. Limits time for commencement and completion of road.

SECT. 20. The usual reservation of the right of the Legislature to repeal in case of misuse or abuse of franchises.

LANDS OWNED BY THE ALLEGHANY RAILROAD AND COAL COMPANY.

The lands owned by the Alleghany Railroad and Coal Company extend from a point near the tunnel of the Pennsylvania Railroad for a distance of thirty miles along the crest of the mountain, and embrace either in fee simple or by purchase of mining privileges nearly 70,000 acres of land. Of these lands the titles to a considerable portion are defective. Owing to the inaccuracies of the original surveys, made at a time when mountain lands were considered comparatively valueless, and when the existence of coal was not

even suspected, it is sometimes difficult to define lines and boundaries; sometimes lands lying in one county have been sold for taxes in another, or sold under names by which the owners did not recognize them. For these and various other reasons it is exceedingly difficult to find lands in such localities to which there are not opposing claims; but to secure the stockholders against any adverse titles that may be found valid, the owners of the lands have set apart and transferred to the President of the Company, to be sold by him at its market value, from time to time, as may be considered by him expedient, stock to the amount of $325,000, the proceeds of which are to be applied to perfecting any titles that may be found defective, or to the purchase of other lands in place of any that may be lost, or in any other way to insure the stockholders a full equivalent. The amount set apart in this way is supposed to be many times as much as will be sufficient to remedy any defects in title that may be found to exist, the larger portion of the lands owned or claimed by the Company not being in dispute.

It has been agreed that the balance of the fund of $325,000, after making good any deficiencies in the land, shall be sold for the benefit of all the stockholders, and the proceeds applied to improvements; and this fund is supposed to be amply sufficient for this purpose, without creating new stock, or making assessments upon the stockholders.

Arrangements have been made and are in progress, to perfect the title to all the tracts that contain coal, or are valuable from other considerations; and it is believed that a very moderate expenditure will be sufficient for that purpose; but, if exorbitant prices should be demanded in any instance, the purchase need not be consummated; it is certain that a sufficient number of connected tracts to justify the formation of another company cannot be obtained, and individuals cannot afford to make, and would not be justifiable in making, railroads and other improvements to operate small tracts. It is of no great importance to the Alleghany Railroad and Coal Company whether these isolated

tracts, owned by individuals, are purchased or not; the Company owns more coal land, without them, than can be exhausted in a dozen generations, and the stockholders receive the benefit of the whole fund of $325,000, whether applied to land purchases, or to improvements.

From Lyon, Shorb, & Co., who are proprietors of numerous iron works in various parts of Pennsylvania, has been purchased all the coal in their lands upon the Alleghany Mountain in Blair, Clearfield, Centre, and Huntingdon Counties, with the use of timber for mining purposes, the right to construct roads, and make such improvements as may be necessary. The number of acres owned by this firm exceeds 40,000, of which a large portion contains coal. On these lands, there is a continuous coal field for a distance of seven miles along the crest of the Alleghany Mountain, and on that part of it which of all others is nearest an eastern market, and most readily accessible by branch railways. The deed for this valuable property has been executed, and is in possession of the Company, free of all incumbrance.

The quantity of land owned by the Company, or upon which they can exercise the exclusive right of mining, may reach 90,000 acres, if negotiations now in progress for further purchases are successful.

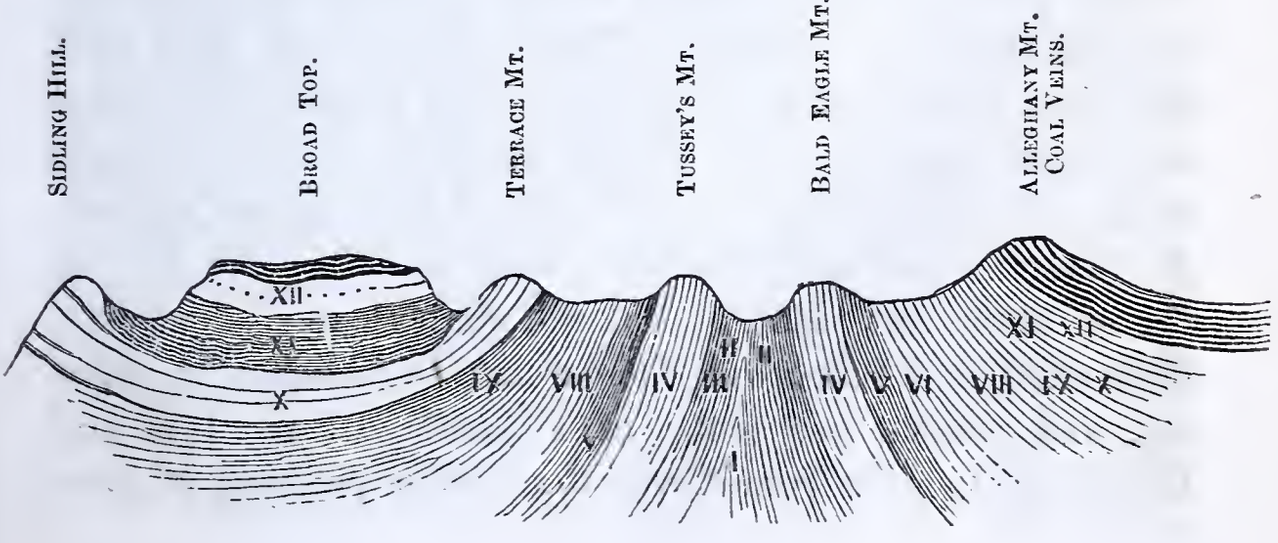
The following report of J. P. Leslie, formerly Assistant Geologist in the survey of the State, shows the identity of the Broad Top and the Alleghany Mountain formation:—

REPORT.

PHILADELPHIA, Oct. 25, 1853.

The same coal beds and other rocks which outcrop upon the Ohio River, and underlie the city of Pittsburg from five hundred to seven hundred feet, are brought to light again along each side of Chestnut Ridge, along each side of Laurel Hill, along each side of Negro Mountain and its extension, the Viaduct axis, and along the whole summit of the Alleghany Mountain from Alabama to the Gap of Pine Creek in Lycoming County, Pennsylvania, and in isolated patches even as far as the North Branch, below Towanda. Here they originally ascended rapidly to a great height in the air, and descended into an immense trough along the line of what is now Standing Stone and other valleys. Only in two or three places was this great synclinal deep enough to protect these beds when the whole upper mass was swept away to form our present topography. The beds do remain in the Frostburg basin, and on the Broad Top. They are the same identical beds which underlie Pittsburg, and outcrop upon the summit of the Alleghany, as the following diagram (looking S. W.) will show:—

GEOLOGICAL SECTION, SHOWING THE IDENTITY OF THE ALLEGHANY AND BROAD TOP COAL FORMATIONS.



The lowest workable bed outcropping near the foot of Plane 6, six feet thick, and at Croyle's Mills, &c. is the great bed of the Broad Top region, and a superior coal in most places. It may always be relied upon as a large or workable bed, varying in thickness from five to twelve feet. We call it *A*, although there is sometimes a small seam underneath it. This bed has of course the most extension, underlying all the others, spreading out its edges beyond theirs, and sometimes left in the summits when the others are all gone. It is a fine accident, that just the bed next the conglomerate, and overlaid with the first sandstones, and therefore the best protected of all the beds, should have been a large and good coal.

The second bed has a limestone under it (*B*), which furnishes the Johnstown cement, and is about fifty feet above coal *A*.

The third (*C*) outcrops at the head of Plane 6, and is Lemon's coal, sixty feet above coal *B;* a fine, steady, four feet bed.

Both these occupy tracts in Broad Top, but have not yet been worked. They commonly accompany the first bed (*A*) along the summit of the Alleghany; and any lands which have the one are most likely to have all three. There is a fourth bed (and a fifth in Clearfield County) before we enter the barren measures, but we can seldom reckon upon finding more than two, or at most three, of this series *workable* in any one local region or hill-side.

The quality of these beds varies regularly as we follow them eastward or westward. They are the same beds with the three or four lowest of the anthracite basins, where they have been retained in the deepest places of other synclinals to the southeast of the one of which I have above spoken. At Mauchchunk and Pottsville they contain only five or six or seven per cent. of volatile matter; at Wilkesbarre, Shamoken, and Pinegrove, the percentage advances to eight, ten, and twelve per cent.; at Towanda, Broad Top, and Frostburg, there is from eleven to eighteen per cent. of bitu-

men; at Ralston, Farrandsville, and Snowshoe, twenty per cent. (This will be about the percentage along the summit of the Alleghany, although here and there single beds will be found to yield in particular localities a less percentage—*e. g.* the upper seam at Karthaus yielded only thirteen per cent. at one place.) At Blossburg, Karthaus, Curwinsville, and Blairsville, there is from twenty-four, twenty-seven, to thirty-one per cent. In Clarion County, Beaver County, Crawford County, and Mercer County, the percentage ranges between thirty-five and forty-five. This is the Pittsburg percentage.

The higher the percentage, the better the coal for gas-making.

With a percentage from ten to twenty, we have the best steam-generating qualities, other things being equal.

J. P. LESLEY,
Topographical Geologist.

It appears from these statements, which are fully confirmed by other geologists employed in the survey of the State, that the Broad Top formation, which has recently excited so much attention amongst capitalists, is identical with that of the Alleghany Mountain. The veins are of the same thickness, and similarly disposed; the associated rocks are the same; and the only difference observable is, that the Broad Top coal is sometimes harder than that from the Alleghany mines, and contains less bitumen; but specimens from both localities are often found identical in every respect.

Regarding Huntingdon, the intersection of the Broad Top Railroad with the Pennsylvania Railroad, as a common point, the distances of the Broad Top and Alleghany coal fields may be considered the same; but, while the Broad Top is brought into connection with the Pennsylvania Railroad by means of a branch thirty-five miles or more in length, with undulating gradients upon which ascents occur in opposition to the loaded trains, the Alleghany region requires only short branches of from two to seven miles, with descending

gradients upon which the motive power for the loaded cars would be gravity alone. As a large amount of capital has been invested in the construction of the Broad Top Railroad, upon which dividends should be paid, it is clear that coal cannot be delivered by it at Huntingdon as cheaply as it can be sent from the Alleghany coal field.

COMPARATIVE VALUE OF ANTHRACITE AND BITUMINOUS COAL FOR FUEL IN ENGINES.

An impression exists, that anthracite is more valuable than bituminous coal for steam-generating purposes. Independently of any experiment on the subject, this conclusion would appear to be erroneous. It is well known that heat is best communicated by actual contact, and that the most intense white heat is far below the temperature of flame. The safety-lamp depends for its efficacy upon the principle that the smallest point of flame is sufficient, from its greater temperature, to ignite a mixture of inflammable gas, while a much greater surface, heated to whiteness, would produce no effect. Anthracite burns without flame, and its effects are due to the caloric radiated from a bed of incandescent fuel. The intensity of radiant heat is inversely as the square of the distance from the source of heat to the object to be heated; and if the bed of coals is not in close proximity to the boiler, it is reasonable to suppose that a loss must be experienced.

Bituminous coal burns with a large amount of flame, which plays around the boiler and in actual contact with it; at the same time the boiler receives in addition the radiant heat from the bed of coals. These considerations, in the absence of positive testimony, would lead to the conclusion, that bituminous coal, for the generation of steam, should be preferable to anthracite. Facts do not contradict this conclusion. Carefully conducted experiments upon the Pennsylvania Railroad by Lea Pusey, Esq., master machinist of the

Mifflin shops, have proved that bituminous coal will, during combustion, generate fifty per cent. more of steam than an equal weight of anthracite. The following is the statement of Lea Pusey:—

Mifflin, Nov. 12, 1853.

Soon after the shops at this place went into operation, we had occasion to use bituminous coal a few days until a supply of anthracite was received. Observing that the bituminous coal seemed to answer exceedingly well by causing the safety-valve to leave its seat more frequently than usual (a term in use when a boiler is making steam freely), I thought I would test the qualities of the two mentioned coals, with the hope that bituminous would at least equal the anthracite in economy. In this hope I was not disappointed, as you will see by my first and last experiment, which gave results that caused some of my acquaintances to think I might have reversed the case in an overlooked error; and, to convince one of them, I gave an order to the fireman to measure eleven bushels of bituminous coal, and commence in the morning to fire the stationary boiler with it, and if it did not run the engine all day to let it stop. I had the satisfaction of seeing the engine running until half-past eight o'clock in the evening, which made 11½ working hours. This was sufficient proof. Bituminous coal has been used for fuel ever since under the stationary boiler.

Experiment first was made by running the engine three successive days on each kind of coal, which resulted in 33 bushels of bituminous coal, weighing 71 pounds per bushel, running the engine 3 days, or 30 hours; 42 bushels of anthracite, weighing 81 pounds to the bushel, ran the engine the same length of time as above. In making this statement in your presence a few weeks ago, you seemed somewhat surprised. I promised I would repeat the experiment, and report the result. As the fireman had not fired the boiler with anthracite, I required him to use it two days to get his hand in,

before testing the quantity used. The last experiment was made by weighing 2,000 pounds of bituminous from Irvin's station, which ran the stationary engine 23½ hours, leaving 335 pounds of ashes; 2,000 pounds of anthracite, from Lyken's Valley, ran the stationary engine 15½ hours, leaving 515 pounds of ashes. We now require more power than in the first experiment, hence the small difference in quantity consumed in the time given in the two experiments.

L. PUSEY.

The results of these experiments are as follows:—

33 bushels of bituminous coal from the Alleghany Mountain, weighing 71 pounds per bushel, ran the engine 30 hours; the consumption was 78 1/10 pounds per hour. 42 bushels of anthracite, weighing 81 pounds per bushel, lasted 30 hours; the consumption was therefore 113 4/10 pounds per hour. The difference is 35 3/10 pounds per hour; or the anthracite required is 45 per cent. more by weight than the bituminous to produce an equal effect.

In the second experiment, 2,000 pounds of coal from Irvin's station, lasted 23½ hours; 2,000 pounds of Lyken's Valley, a free-burning anthracite, lasted only 15½ hours; difference, 8 hours, or 52 per cent. in favor of bituminous coal.

The coals used in these experiments were not the same; the first was from the Alleghany Mountain, containing about twenty per cent. of volatile matter; the second was from the Pittsburg vein, containing about 40 per cent. of gaseous substances. As the useful effect in the second experiment was greater than in the first, it would appear that the larger the proportion of bituminous matter, the more satisfactory the result; from which it would follow as a consequence, that the Alleghany coal, containing twenty per cent. of volatile substances, should generate steam more readily than coals of the semi-bituminous kind, which contains a lower percentage.

Experiments were made at the principal shops of the Pennsylvania Railroad Company at Altoona, to determine the relative value of Broad Top and Alleghany coal for blacksmith purposes. The shops had been using the Alleghany coal for a long time as their regular fuel. When the supply was stopped, and Broad Top substituted, the change gave much dissatisfaction to the workmen, who, without a knowledge of the locality, condemned the substitute as very inferior. This result was unexpected, as the Broad Top coal has a very high reputation for blacksmith purposes throughout the country; there is, however, no reason why it should be in any particular superior to the Alleghany coal, as the only difference consists in its containing less bitumen.

Alleghany Mountain coal has been used at Reading and other places, for the manufacture of gas; but, as it yields but half as much as the Pittsburg or Youghiogeny coal, it cannot be extensively employed for this purpose. The demand for gas coal in the cities of Baltimore, Philadelphia, and New York, is only 200,000 tons per annum, while the consumption of coal for other purposes is nearly seven millions—for nearly all these purposes bituminous coal could be substituted, and, at the price of anthracite, its use would become greatly extended, and the demand far exceed the possibility of supply for many years.

FACILITIES AND COST OF TRANSPORTATION.

The Alleghany coal field has two outlets to the Eastern markets, and is in a favorable position to supply the cities of New York, Philadelphia, and Baltimore. Should the branch railroad connecting the mines with the Pennsylvania Railroad, be located to intersect at Tyrone, the distance to the Pennsylvania Canal at Petersburg will be but thirteen miles. Should the branch intersect at Tipton station, the distance will be seventeen miles. It is expected that the Pennsylvania Canal will be enlarged to accommodate the coal trade from the Broad Top and Alleghany regions. This enlargement

would greatly reduce the cost of transportation; at present, the capacity of the canal is sufficient for boats of sixty tons, and, at certain seasons, coal is carried at low rates, but the most certain dependence will be the Pennsylvania Railroad, and the calculation of expenses will be made on the supposition that the railroad alone is used.

The cost of transportation of coal, on the Reading Railroad, everything included, is six mills per ton per mile; and on the Baltimore and Ohio Railroad, eight mills per ton per mile, including in the latter case, as stated verbally by the superintendent, the interest on the cost of the cars and engines; in both these cases, an equipment is maintained, the whole expenses of which are chargeable to the coal business. The rates on the Baltimore Road, with higher grades than those of the Pennsylvania Railroad, were for a long time less than one cent per ton per mile, and at present, the rate is less than $1\frac{1}{4}$ cent per ton per mile, the cars always returning empty.

Within certain limits, the Pennsylvania Railroad Company could carry coal more cheaply than any other; their business is peculiar: terminating at the head of navigation on the Ohio, the regular freight business is affected by the fluctuations in the height of water, and in spring and fall, for several weeks, an immense tonnage of merchandise is passed over the road. For this business the Company must necessarily expect to furnish accommodations; it is not only profitable while it lasts, but it was chiefly to secure this trade and the important benefits which it confers upon the city of Philadelphia, that led to the construction of the road. To suppose that the Company, from considerations of economy, will refuse or neglect to provide accommodations for this spring and fall business, is to suppose the existence of a state of things that the stockholders and others interested in the road would not tolerate.

If an equipment of cars and engines is provided sufficient for the business of the spring and fall, not a tithe of it would be employed in the transportation of ordinary merchandise

in the summer. It follows, therefore, that this stock must remain idle, or it must be employed upon some local tonnage that can always be at command when required. It is a peculiarly favorable circumstance for the Pennsylvania Railroad, and one which places it in a position more enviable than that of any other road, that a local business can always be secured sufficient to employ the whole stock of the road to its capacity, and at highly remunerative rates. The actual cost of transporting coal and lumber upon the Pennsylvania Railroad is simply the difference in expense between running the stock or letting it remain unemployed. No interest can properly be charged in this calculation, no increase in general expenses, and but little in repairs of track. It is certain that the increased expense consequent upon the accommodation of such a business upon the Pennsylvania Railroad at the convenience of the Company, must fall below one-half cent per ton per mile, while the capacity of the road for such tonnage, when the double track is finished, cannot be estimated at less than 500,000 tons.

At the rate charged for the transportation of coal on the Baltimore and Ohio Railroad, or say $1\frac{1}{4}$ cent per ton per mile, the Company would clear, between Tyrone and Harrisburg, 115 miles, 86 cents per ton, or $430,000 on 500,000 tons. This would be $8\frac{1}{2}$ per cent. on the cost of the portion of the road in use, or nearly 3 per cent. on the whole estimated capital of sixteen millions.

It is not to be supposed that the Pennsylvania Railroad Company would neglect to avail themselves of the enviable opportunity which will be afforded them of making their road an instrument of great public advantage, and of largely increasing their profits at the same time. Not only will the direct pecuniary gain be very large, but the increase of business will add several thousands to the population of the mining districts, increase the exchanges of merchandise and other commodities, add to the receipts from local passengers, and give an additional impetus to the business of our metropolis.

It must be evident from the considerations that have been stated, that a large business is of so much importance to the Company, that a reasonable charge for transportation may be confidently relied upon as the only means of securing it; and it will be safe to assume, that in less than two years from this time, or before the close of 1856, coal will be carried at a price not exceeding $1\frac{1}{4}$ cent per ton per mile.

The cost of delivering coal in Philadelphia, on the supposition that the same rate of charge shall be continued between Harrisburg and Philadelphia as on the Pennsylvania Railroad, will be as follows:—

7 miles on branch road to Tyrone, @ 3 cts. .	0 21
221 miles from Tyrone to Philadelphia, @ $1\frac{1}{4}$.	2 76
Value of coal delivered in cars at mines . .	1 00
Contingencies	0 28
	$4 25

At this price, or even at $4 50 per ton, bituminous coal would come into general use as a substitute for anthracite, and there would be no difficulty in finding a ready market, the demands of which would exceed the means for transportation. Even if the railroad charges should be fixed as high as $3 per gross ton, there would be a sufficient margin for profit to satisfy any reasonable expectations.

PROSPECTIVE PROFIT.

The Alleghany coal formation is as regular and continuous as the mountain itself. Wherever the Alleghanies exist, there coal is found; the same veins extend from Alabama to the northern boundaries of Pennsylvania, without dykes or faults, with nothing to break their continuity except valleys of denudation, of rare occurrence. In every ravine upon the eastern slope of this mountain range, coal is exposed; and it can be mined at less than half the cost of anthracite. A good hand can dig, and deliver at the mouth of the pit—if

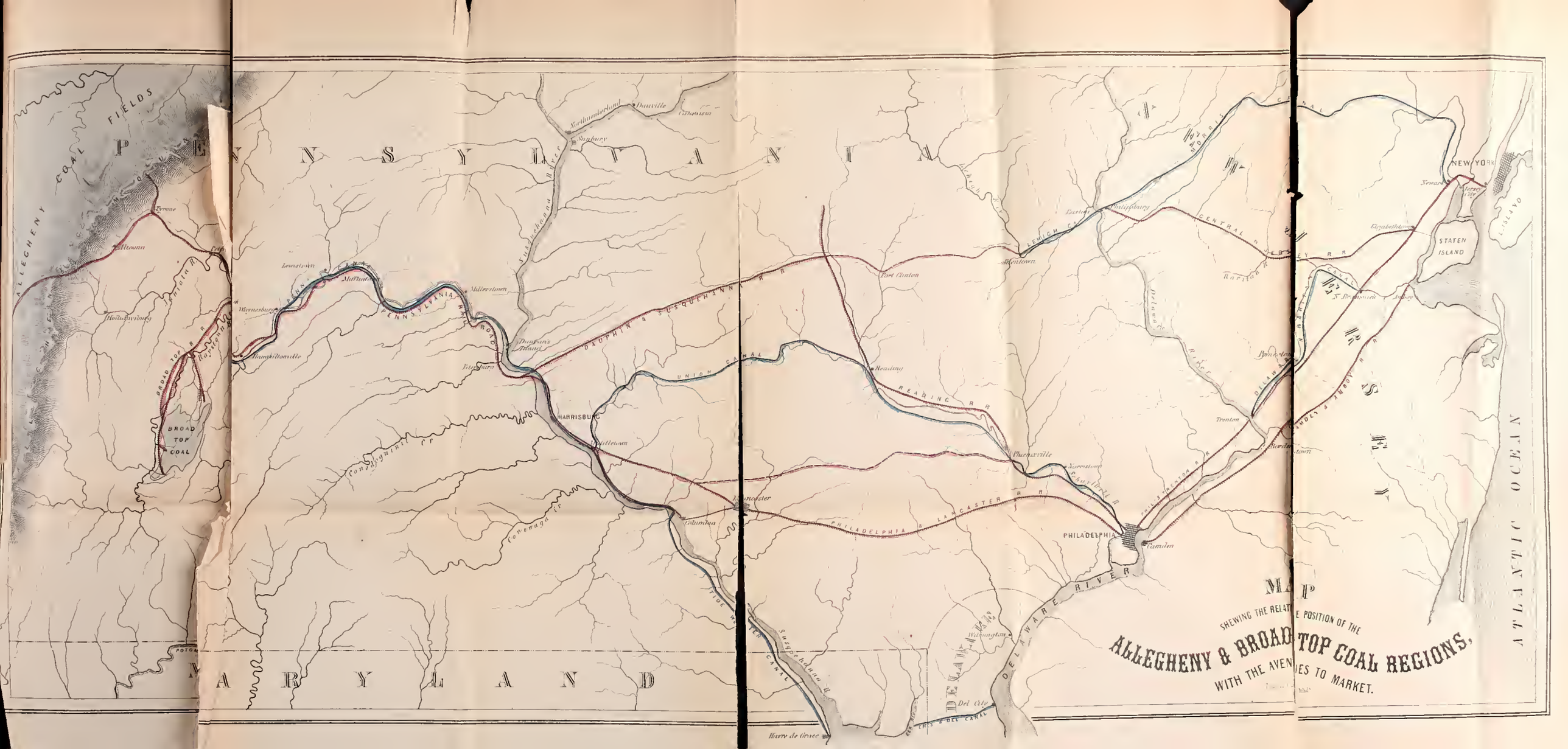
furnished with cars—300 bushels per day; and, with barrows, 200 bushels. Good wages would be made at one cent per bushel, or 28 cents per ton. Allowing liberally for all possible contingencies, the coal delivered in cars ready for transportation cannot pay the proprietors less than 50 cents per ton.

At this rate, the number of tons required to pay the interest on the whole capital will be 120,000, giving employment to not more than 80 miners, working 200 days; a very small business in comparison with the operations in other localities.

It is possible that the shipments by railroad and canal could be readily increased to 300,000 tons, which would pay $150,000, or fifteen per cent. upon the whole capital; in addition to which, it is proper to observe, that the profits on coal may considerably exceed 50 cents per ton, which is supposed to be a minimum.

It has been stated that the number of acres owned or controlled by the Company may reach 90,000. It is not to be understood that all of these lands will be found to contain coal. Coal will be certainly found on all the tracts lying along or near the crest of the mountain, and in nearly all on the western slope. The actual quantity of coal cannot be ascertained at present, but it is believed that a safe calculation will exceed 20,000 acres. The capital of $1,000,000, therefore, represents a value of $50 per acre for coal. It is usually calculated that each cubic yard will yield a ton of coal; at this rate, the six feet vein alone would furnish 9,600 tons, worth $4,800 per acre as its intrinsic productive value at 50 cents per ton profit. Mined at the rate of a million of tons per annum, the estate could not be exhausted in two hundred years. It is of little consequence, therefore, whether all the lands contain coal or not; it is certain that there are many thousands of acres more than the Company can use. Much time and expense must be incurred before the exact boundaries of the coal veins can be ascertained by examinations of the outcrops; and it is not considered necessary to incur this

expense at present. It is certain that facilities are afforded in every ravine upon the eastern slope of the mountain for extensive and profitable works, and the advantages of securing the whole of the extensive coal field, conveniently accessible by short branches from the Pennsylvania Railroad, is too obvious to require further explanations.

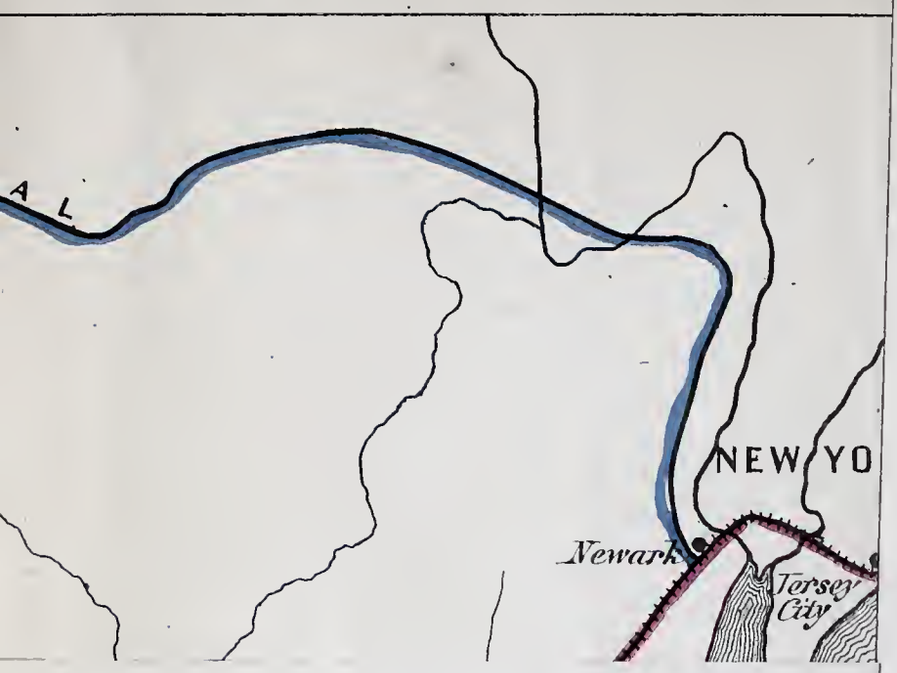


MAP

SHEWING THE RELATIVE POSITION OF THE

ALLEGHENY & BROAD TOP COAL REGIONS,

WITH THE AVENUES TO MARKET.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